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Commission on Science and Technology for Development

**Report on the fifth session
(28 May-1 June 2001)**

Economic and Social Council

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Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

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Summary

At its fifth session, the Commission on Science and Technology for Development considered five substantive items, including the examination of a report on the main theme for the session, "National capacity-building in biotechnology". Other substantive agenda items covered the implementation of and progress on decisions made at the fourth session of the Commission, international and country reports on technology and innovation policies, the budget of the Commission and activities of the Commission regarding the coordination of science and technology for development. After consideration of the substantive agenda items, the Commission adopted three resolutions, which addressed the major issues addressed at the fifth session and recommended them for adoption by the Economic and Social Council.

In the first resolution, entitled "Science and technology for development", it was decided that the substantive theme and focus of the Commission's work during the intersessional period 2001-2003 would be "Technology development and capacity-building for competitiveness in a digital society". The work of the Commission would be carried out in a multidisciplinary manner, taking into account the scientific, technological, economic, commercial, ethical, social, educational and commercial aspects of the theme. The resolution also recommended that actions be taken to ensure that previous findings of the Commission on information and communication technology are brought to the attention of groups and current initiatives that aim to bridge the digital divide. It was further recommended that the Commission on Science and Technology for Development assist the Economic and Social Council in the implementation of the outcomes of the latter's review of activities of its subsidiary bodies dealing with information and communication technology.

Regarding national capacity-building in biotechnology, the same resolution recommended that, inter alia, Governments formulate and implement integrated, consistent policy regimes that support the development of biotechnology through coordination of their national sectoral policies, establishing an appropriate institutional vehicle for the coordination of biotechnology-related activities, supporting centres of excellence and networks of key institutions, leveraging public funding and encouraging private sector funding for building scientific capabilities and related infrastructures. The resolution also invited the international community to coordinate its efforts to assist developing countries and countries with economies in transition to engage in capacity-building, particularly in respect of formulating frameworks for legal and regulatory regimes relevant to biotechnology, conducting national capacity needs assessments and facilitating information exchange, partnerships and networking. It further requested that the secretariat of the Commission coordinate and liaise with other international organizations working in biotechnology, disseminate information related to biotechnology through its newly-created electronic network and develop and contribute to programmes aimed at training scientists, diplomats and journalists in science diplomacy. The resolution requested the Commission to assist and encourage national authorities to coordinate their strategies for science and technology, widen access to information and new technologies on affordable terms and encourage partnerships, including through international cooperation.

The Economic and Social Council would also recommend, under the same resolution, that the secretariat of the Commission continue its efforts to use the newly established science and technology network as a gateway for the dissemination of up-

to-date information on activities related to science and technology for development, with a particular focus on information of special importance to developing countries.

The Commission also recommended the adoption by the Economic and Social Council of a second resolution, in which the Council would approve the establishment of a special trust fund for activities in the area of science and technology for development, with a view to assisting the implementation of current and future mandates directed at the United Nations Conference on Trade and Development in the area of science and technology for development. The draft resolution invited contributions to that trust fund and also recommended that those resources currently available in the Trust Fund for Special Activities in Science and Technology for Development be transferred to the newly created trust fund.

The Commission recommended a third resolution for adoption by the Economic and Social Council, which proposed that in future the Commission would meet annually and requested that an open-ended working group be set up to study and analyse the role of the Commission in the recommendation and policy-making process of the United Nations system on science and technology issues. It further recommended that the working group investigate the feasibility of establishing an international mechanism to support research and development in developing countries, particularly in the fields of health, education and agriculture.

Contents

Chapter		Page
I.	Matters calling for action by the Economic and Social Council or brought to its attention	1
	A. Draft resolutions	1
	B. Draft decisions	7
	C. Decision brought to the attention of the Council	9
II.	Substantive theme: National capacity-building in biotechnology	10
III.	Comprehensive note on implementation and progress made on decisions taken at the fourth session of the Commission	15
IV.	Presentation of country reports on technology and innovation policies	17
V.	Budget of the Commission	21
VI.	Activities of the Commission regarding the coordination of science and technology for development and other intersessional activities	22
VII.	Election of the chairperson and other officers for the sixth session of the Commission	24
VIII.	Provisional agenda and organization of work of the sixth session of the Commission	25
IX.	Other matters	26
X.	Adoption of the report of the Commission on its fifth session	28
XI.	Organization of the session	29
	A. Opening and duration of the session	29
	B. Attendance	31
	C. Election of officers	31
	D. Agenda and organization of work	31
	E. Documentation	32
Annexes		
I.	Attendance	33
II.	List of documents before the Commission at its fourth session	35
III.	Summary of the video conference between the Bureau of the Economic and Social Council and the Bureau of the Commission on Science and Technology	36

Chapter I

Matters calling for action by the Economic and Social Council or brought to its attention

A. Draft resolutions

1. The Commission on Science and Technology for Development recommends to the Economic and Social Council the adoption of the following draft resolution:

Draft resolution I
Science and technology for development*

The Economic and Social Council,

Recognizing the role of the Commission on Science and Technology for Development as a forum for improving the understanding of science and technology issues and for the formulation of recommendations and guidelines on science and technology matters within the United Nations system on all science and technology related matters,

Reaffirming the need to enhance the capability of United Nations organizations active in science and technology, in particular of the United Nations Conference on Trade and Development, to effectively address emerging issues in science and technology,

Recognizing the vital role of new and innovative technologies in raising productivity and competitiveness of nations and the need, inter alia, for policy guidance and for measures promoting public awareness of science and technology and the transfer and diffusion of such technologies to developing countries,

Taking note with appreciation of the Secretary-General's synthesis report on the Commission on Science and Technology for Development panels on national capacity-building in biotechnology,[1] the comprehensive note prepared by the secretariat on the implementation and progress made on decisions taken at the fourth session of the Commission,[2] the note by the secretariat on the budget and intersessional activities of the Commission,[3] the note by the secretariat on activities of the Commission regarding the coordination of science and technology for development and other intersessional activities within the United Nations system, including the outcome of the World Science Conference[4] and other relevant documentation submitted to the Commission for consideration at its fifth session,[5]

Welcoming the establishment by the United Nations Conference on Trade and Development of the Science and Technology for Development Network,[6] which provides information on science and technology activities and programmes within the United Nations system and among intergovernmental and non-governmental organizations and builds awareness of scientific and technological developments

* For the discussion, see chap. II.
[1] E/CN.16/2001/2.
[2] E/CN.16/2001/3.
[3] E/CN.16/2001/4.
[4] E/CN.16/2001/5.
[5] E/CN.16/2001/Misc. 1-8.
[6] Web site: unctad.org/stdev.

that are particularly important for developing countries and countries with economies in transition,

Taking note of the Plan of Action adopted by the United Nations Conference on Trade and Development at its tenth session, held at Bangkok from 12 to 19 February 2000,[7] which noted, inter alia, the widening technology gap between developed and developing countries and stressed the need to promote greater access, transfer and diffusion of technology to developing countries in order to strengthen competitiveness based on the innovative capacities of enterprises in these countries,

Recalling key proposals on science and technology contained in the United Nations Millennium Declaration adopted on 8 September 2000 by the Heads of State and Government on the occasion of the Millennium Summit[8] and the declaration adopted at the Summit Conference of the Group of Eight industrialized countries, held in Okinawa from 19 to 24 July 2000,

Recalling also the Havana Programme of Action adopted by the Group of 77 and China at the South Summit held in Havana from 10 to 14 April 2000,[9] which noted with concern the threat of increasing technological marginalization of the South and decided to make science and technology a priority item on the national agenda as well as in the area of South-South cooperation,

Recalling further General Assembly resolution 55/185, which called upon the Secretary-General to strengthen the Commission and its secretariat within the United Nations Conference on Trade and Development by providing it with the necessary resources to enable it to carry out its mandate of assisting the developing countries with their national development efforts in the field of science and technology in an optimal manner.

Activities as follow-up to the earlier work of the Commission

A. National capacity-building in biotechnology

Recognizing that biotechnology has an outstanding potential to support national efforts towards food security, health, environmental sustainability and increased competitiveness,

Realizing that modern biotechnology may be associated with new risks and unexpected impacts on health and the environment and that it raises a number of socio-economic and ethical concerns with regard to gene manipulation, in particular, human genes, and needs to be used and managed taking into account the precautionary approach contained in principle 15 of the Rio Declaration on Environment and Development,[10]

Realizing also that many developing countries cannot easily access modern biotechnologies and that their transfer, absorption and protection are necessary to ensure the benefits mentioned above,

[7] TD/390, part II.
[8] See General Assembly resolution 55/2.
[9] A/55/74, annex II.
[10] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992* (United Nations publication, Sales No. 93.I.8 and corrigenda), vol. I: *Resolutions adopted by the Conference*, resolution I, annex I.

Bearing in mind that many developing countries cannot adequately protect their traditional knowledge and biological resources and that their protection is also necessary to ensure the benefits mentioned above,

Cognizant that there is a close relationship between the development and transfer of biotechnologies and adequacy of the information and communications technology infrastructure to facilitate access to information on recent advances,

Taking into account the work of its three panels on biotechnology and the agreed recommendations on the sustainable use of biological resources of the Commission on Trade in Goods and Services and Commodities of the United Nations Conference on Trade and Development,

Aware of the work under the Cartagena Protocol on Biosafety of May 2000, to the Convention on Biological Diversity[11] and the enabling activities of the United Nations Environment Programme and the Global Environmental Facility,

Decides to recommend the following actions for consideration by Governments, the international community and the United Nations Conference on Trade and Development in order to assist developing countries, in particular least developed countries, and countries with economies in transition to strengthen their indigenous capacity to produce, promote, monitor, assess, manage, and regulate biotechnology:

1. Governments are encouraged to undertake the following actions in order to establish integrated, consistent policy regimes supporting development in biotechnology:

(a) Coordinate their national policies in education, science and technology, health, environment and agriculture, taking into account biotechnology-driven priorities and needs, also, where appropriate, at the regional level;

(b) Mobilize and leverage public funding and encourage private sector funding for building scientific capacities and all related infrastructures;

(c) Create the necessary conditions for the creation and assimilation of scientific and technological know-how;

(d) Support centres of excellence and networks of key institutions in order to develop and retain national capacity while harnessing the expertise of nationals based overseas;

(e) Ensure that the biotechnology sector is included in the relevant national capacity needs assessments and subsequent strategies and that action plans are developed;

(f) Ensure that there is a vehicle such as a focal point or national commission for coordination and enhancement of activities, including national capacity needs assessments and national capacity-building;

2. The international community is invited to:

(a) Coordinate efforts to assist developing countries and countries with economies in transition to engage in capacity-building, to establish and strengthen

[11] A/AC.237/18 (Part II)/Add.1 and Corr.1, annex I.

the necessary legal and regulatory regimes for biotechnology and to access relevant information and obtain and apply modern biotechnologies suited to its needs;

(b) Foster information exchange and networking, including through public-private sector partnerships involving government, academia and private enterprise;

(c) Assist the national authorities of developing countries, including focal points/commissions in formulating frameworks for legal and regulatory regimes for managing and regulating biotechnology, and assist in the implementation of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity;[11]

(d) Assist the national authorities of developing countries, and institutions within the United Nations system, including the United Nations Conference on Trade and Development, to undertake national capacity needs assessments as well as the above-mentioned tasks;

3. The United Nations Conference on Trade and Development, within its mandate, as defined in the Plan of Action adopted by the United Nations Conference on Trade and Development at its tenth session,[12] is requested to:

(a) Coordinate and liase, in its work on biotechnology, with other international organizations working in biotechnology, inter alia, the United Nations regional economic and social commissions;

(b) Use its newly created electronic network for science and technology to make available information on legal and regulatory frameworks to national authorities, as well as other relevant balanced information on developments in biotechnology to policy makers and diplomats, the public, non-governmental organizations, journalists and the private-business sector;

(c) Assist the developing countries, in particular least developed countries, to develop strategies and national plans, including through the undertaking of national capacity needs assessments, using extrabudgetary resources;

(d) Develop special programmes and organize workshops, using extrabudgetary resources, to contribute to ongoing programmes for training scientists, diplomats and journalists in science and technology diplomacy, policy formulation and regulatory matters to assist developing countries, in particular least developed countries, in international negotiations and international norms and standard-setting;

(e) Initiate or contribute to studies on the specific problems faced by developing countries in the areas of technology transfer, capacity-building, regulation and biosafety using extrabudgetary resources;

(f) Collaborate with the Bureau of the Commission to ensure the implementation of its recommendations, including mobilization of extrabudgetary funds;

4. *Requests* the Commission on Science and Technology for Development, within its mandate as coordinator of the science and technology activities in the United Nations system, to:

[12] TD/390, part II, paras. 106, 117, 121 and 147.

(a) Encourage the national authorities in charge of science and technology, and when appropriate at regional level, to coordinate their strategies, and to provide substantive support in this regard;

(b) Propose concrete guidelines to facilitate development of, access to and dissemination of information, new technologies and technology-based products on affordable terms, including preferential terms;

(c) Encourage partnerships among interested parties, including through international cooperation.

B. New substantive theme and other activities

Recalling the Ministerial Declaration of the high-level segment of the Economic and Social Council in 2000,[13] which stressed the central role of information and communication technologies in creating a global knowledge-based economy, in accelerating growth, raising competitiveness, promoting sustainable development, eradicating poverty and facilitating the effective integration of all countries into the global economy,

Recognizing that information and communication technologies present opportunities and challenges and can lead to a further widening of disparities between and within countries,

Heeding the call of the Ministerial Declaration for members of the international community to work cooperatively to bridge the digital divide and to foster "digital opportunity",

Recalling resolution 1/1 adopted at the first session of the Commission in 1993,[14]

Also recalling the intersessional programme of work of the Commission for 1997-1999 on information and communication technology and its book, *Knowledge Societies: Information Technology for Sustainable Development*,[15] as well as its guidelines for national information and communication technology strategies and its conclusions drawn from twenty-nine different coalitions of resources regarding infrastructure and applications of information and communication technologies, remembering its conclusion that, although the cost of using information and communication technologies is still high, the cost of not doing so is likely to be even higher,

Recognizing that the competitiveness of a nation depends on the productivity of its enterprises and that their productivity depends in large measure on investment in new technologies such as information and communication technologies and access to information available through the Internet,

1. *Decides* to follow up its work on information and communication technologies through its Bureau or, if necessary, through the creation of a subcommittee of the Commission:

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[13] *Official Records of the General Assembly, Fifty-fifth Session, Supplement No. 3* (A/55/3/Rev.1), chap. III, para. 17.

[14] E/1993/31-E/CN.16/1993/12, chap. I, sect. C.

[15] United Nations publication, Sales No. E.GV.98.O.11.

(a) To ensure that its previous findings and recommendations are brought to the attention of the main players in bridging the digital divide such as the Secretary-General's United Nations Task Force on information and communication technology, the Digital Opportunity Task Force of the Group of Eight and the Task Force on information and communication technology of the Group of Fifteen;

(b) To assist in the implementation of the outcome of the review by the Economic and Social Council of the mandates and activities of its subsidiary bodies dealing with information and communication technology, with a view to establishing modalities to provide the United Nations and Governments with comprehensive, practical and action-oriented advice on policies and programmes and on new developments in the field of information and communication technology;

(c) To oversee the inclusion of such information in the new Science and Technology for Development Network and strengthen information technology networks at the regional, subregional and interregional levels by linking them with the newly established network;

2. *Calls upon* the Commission and its secretariat to interact closely with the ICT Task Force in order to promote greater information exchange and coordination of activities in information and communication technologies. Such interaction should include participation of the secretariat in all the meetings of the ICT Task Force and reporting back to the Commission on the outcome of those meetings;

3. *Decides* to choose as the substantive theme for the intersessional period 2001-2003, "Technology development and capacity-building for competitiveness in a digital society". It is expected that the work of the Commission during the above-mentioned period will be carried out in a multidisciplinary manner, with a synergistic view to scientific and technological, economic and commercial, as well as the ethical, social and educational aspects.

C. Coordination of science and technology for development in the United Nations system

Requests the secretariat to continue its efforts to use the newly established science and technology network as a gateway to disseminate information on activities on science and technology for development and to update information on scientific and technological developments that are particularly important for developing countries.

Draft resolution II
Special Trust Fund for Activities in the area of Science and Technology for Development*

The Economic and Social Council,

Noting the growing importance of the work on science and technology for development to be implemented within the Commission on Science and Technology for Development,

Recalling General Assembly resolution 55/185 of 20 December 2000, which recognized the need for adequate resources, including the provision of new and

* For the discussion, see chap. V.

additional resources from all sources, to be devoted to fostering science and technology for development,

Taking into account the current situation with resources, in particular extrabudgetary resources, available to implement the mandate received by the secretariat of the United Nations Conference on Trade and Development from the Commission on Science and Technology for Development through the Economic and Social Council, as well as from the Council and the General Assembly,

1. *Recommends* that a special trust fund for activities in the area of science and technology for development be established within the United Nations Conference on Trade and Development, with a view to assisting in implementing various mandates received or to be received by the Conference in the area of science and technology for development;

2. *Also recommends* that resources currently available in the Trust Fund for Special Activities in Science and Technology for Development, established by the Secretary-General on 4 April 1985 to disseminate science and technology information, be transferred to the newly created trust fund referred to in the above paragraph;

3. *Invites* contributions to the newly established trust fund.

Draft resolution III
Strengthening the work of the Commission on Science and Technology for Development*

The Economic and Social Council,

Taking into account the fact that the United Nations Commission on Science and Technology for Development, within its mandate, is the coordinator of science and technology activities within the United Nations system:

1. *Decides* that the Commission should meet annually;

2. *Requests* the Commission to establish an open-ended working group for the purpose of analysing ways and means to improve the role and participation of the Commission in the recommendation and policy-making process of the United Nations system on science and technology issues, with the aim of working towards the strengthening of the Commission. The Working Group should submit to the next session of the Commission concrete measures for adoption;

3. *Decides* to study the feasibility of establishing an international mechanism for supporting and enhancing research and development within the developing countries and in areas critical to the developing countries especially in the fields of health, education and agriculture.

B. Draft decisions

2. The Commission on Science and Technology for Development recommends to the Economic and Social Council the adoption of the following draft decisions:

* For the discussion, see chap. IX.

Draft decision I
Report of the Commission on Science and Technology for Development on its fifth session and provisional agenda and documentation for the sixth session of the Commission*

The Economic and Social Council:

(a) Takes note of the report of the Commission on Science and Technology for Development on its fifth session and endorses the resolutions and decisions adopted by the Commission;

(b) Approves the provisional agenda and documentation for the sixth session of the Commission set out below.

Provisional agenda and documentation for the sixth session of the Commission on Science and Technology for Development

1. Adoption of the agenda and other organizational matters.

2. Substantive theme: "Technology development and capacity-building for competitiveness in a digital society".

   Documentation

   Report of the Secretary-General

3. Comprehensive note on implementation and progress made on decisions taken at the fifth regular session of the Commission.

   Documentation

   Note by the Secretariat

4. Presentation of country reports on technology.

5. Budget of the Commission.

   Documentation

   Note by the Secretariat

6. The functioning of the Commission on Science and Technology for Development, including its role in coordinating science and technology for development.

   Documentation

   Note by the Secretariat

7. Election of the Chairperson and other officers for the seventh regular session of the Commission.

8. Provisional agenda and organization of work of the seventh session of the Commission.

* For the discussion, see chap. VIII.

9. Other matters.

10. Adoption of the report of the Commission on its sixth session.

Draft decision II
Gender Advisory Board*

The Economic and Social Council decides:

(a) To extend the mandate of the Gender Advisory Board for a further four years in order to allow it to complete its programme of work within the extrabudgetary resources allocated for this purpose;

(b) To endorse the nomination of Brazil and Tunisia for membership in the Gender Advisory Board to fill the two vacancies on the Gender Advisory Board from among the members of the Commission in order to ensure continued linkages between the Board and the Commission;

(c) That the Commission on Science and Technology for Development should assess at its sixth session the desirability of continuing the work of the Board and the potential for obtaining external resources to do so.

C. Decision brought to the attention of the Council

3. The following decision adopted by the Commission on Science and Technology for Development is brought to the attention of the Economic and Social Council:

Decision 5/1
Chairman's summaries of the discussions

At its 8th meeting, on 1 June 2001, on the proposal of the Chairman, the Commission on Science and Technology for Development decided to include the Chairman's summaries of the discussions at its fifth session in the report of the Commission on that session.

* For the discussion, see chap. IX.

Chapter II

Substantive theme: National capacity-building in biotechnology

1. The Commission considered agenda item 2 at its 1st, 2nd, 3rd and 8th meetings, on 28 and 29 May and on 1 June 2001. It had before it the following documents:

(a) The Secretary-General's synthesis report on the Commission on Science and Technology for Development panels on national capacity-building in biotechnology (E/CN.16/2001/2);

(b) Summary report prepared by the secretariat of the United Nations Conference on Trade and Development (UNCTAD) on the panel on capacity-building in biotechnology, Tehran (E/CN.16/2001/Misc.2);

(c) Summary report prepared by the secretariat of the United Nations Conference on Trade and Development on the panel on public awareness and participation in science policy-making in biotechnology, Tunis (E/CN.16/2001/Misc.3).

2. At the 1st meeting, on 28 May, Professor Richard Braun, Chairman of the European Federation of Biotechnology, and Ms. Kathy Stocks, Consultant to UNCTAD and expert on biotechnology, made presentations.

3. At the same meeting, statements were made by the representatives of Angola, Brazil, Ghana, Indonesia, the Islamic Republic of Iran, Romania, the Russian Federation, Spain and Sri Lanka, as well as by the observer for Argentina.

4. At the 2nd meeting, on 28 May, Dr. Tariq-ur-Rahman (Pakistan), introduced the outcome of the panel on capacity-building in biotechnology.

5. At the same meeting and in connection with the presentation, statements were made by the representatives of Angola, Colombia, Germany, Ghana, the Islamic Republic of Iran, Romania, the Russian Federation and Sri Lanka.

6. Also at the same meeting, the observer of the United States of America made a statement.

7. At the same meeting, the observer for the World Health Organization, as well as the observer of the Economic Commission for Africa, made statements.

8. At the same meeting, Professor Michael Rode (Austria) and Vice-Chairperson of the Commission, introduced the outcome of the panel on legal and regulatory issues in biotechnology.

9. At the same meeting and in connection with the presentation, statements were made by the representatives of the Islamic Republic of Iran, Romania, the Russian Federation and Sri Lanka.

10. At the same meeting, the observer for the Economic Commission for Africa made a statement.

11. At the same meeting, Dr. Pedro Teta, Vice-Minister of Science and Technology (Angola) and Vice-Chairperson of the Commission, introduced the outcome of the

panel on public awareness and participation in science and policy-making in biotechnology.

12. At the same meeting and in connection with the presentation, statements were made by the representatives of Austria, Bolivia, Brazil, Ghana, the Islamic Republic of Iran, Romania and the Russian Federation.

13. At the same meeting, the Chief of the Technology for Development Section, the Chief of the Technology and Enterprise Branch and the expert on biotechnology of the United Nations Conference on Trade and Development made statements.

14. At the 3rd meeting, on 29 May 2001, the Chief of the Technology and Enterprise Branch of the United Nations Conference on Trade and Development summarized the outcome of the general discussion of agenda item 2.

15. At the same meeting, statements were made by the representatives of Angola, Algeria, Austria, Colombia, Germany, Ghana, Romania, the Russian Federation, Spain and Sri Lanka, as well as by the observers of Saudi Arabia and Egypt.

16. At the same meeting, the observer of the World Health Organization made a statement.

17. Also at the same meeting, the observer of the Engineers of the World, a non-governmental organization, made a statement.

Chairperson's summary of the general discussion

18. The work programme of the Commission on the theme of national capacity-building in biotechnology recognizes that new and emerging biotechnology presents both opportunities and challenges, particularly in the key areas of agriculture, agro-industry, health and the environment. Developing countries face particular barriers to the successful acquisition, development, deployment and management of these technologies. Key requirements for successful capacity-building include adequate legal and regulatory frameworks, substantial financial resources and human skills, efficient communications infrastructure and utilities supply, enhanced laboratory facilities and greater public awareness. Most importantly, the Commission suggested that in order to maximize the benefits and minimize the risks associated with modern biotechnology, national Governments should develop strategies, policies and action plans to develop and manage the technologies. Successful implementation of those strategies, policies and plans would depend on long-term vision, political will and the ability to commit financial resources to science and technology development.

19. The Commission supported the recommendation that national Governments, with international assistance, should initiate a process of cohesive policy formulation by undertaking national assessments for biotechnology. The objectives of those assessments would be to bring together stakeholders, identify national priorities, inventory existing capacity, target resources at identified priority needs and gaps in existing capacity, harmonize sectoral policies across agriculture, health, trade, industry and environment, and exploit biotechnological synergies across those sectors. National Governments could identify or put in place an appropriate body to undertake national assessments. National focal points for biotechnology might be appropriate institutional mechanisms for that purpose. The Commission could help

developing countries by developing a generic methodology or framework model for national assessments that would take into account situation-specific factors such as differing levels of national technological development, legal frameworks, and social and cultural norms. The international community could also help Governments, particularly those of the least developed countries, with the provision of financial resources and expertise to undertake assessments.

20. The Commission found that most biotechnology development in developing countries was in the public sector, and that scarce public funding was often spread too thinly across areas of application and research organizations. Participants in the work programme suggested that national Governments could focus public funding on priority areas of application, or on specific institutions that might be built into centres of excellence, where possible and appropriate. Centres of excellence could serve as focal points for information and technology acquisition and diffusion, and provide training. Enhanced facilities and research opportunities offered by those centres might also encourage local scientists to remain in their home countries. Governments could select or establish a single national centre, or spread resources over several key centres. What was important was that centres would form links with other research organizations and with technology end-users, rather than establish a monopoly over public sector research and become isolated. The potential success of centres of excellence might depend on the local country context, including availability of financial and human resources. National assessments could determine what institutional arrangements would be most appropriate for the efficient allocation of resources.

21. The Commission identified institutional structures and linkages as being critical to successful technological development, especially in respect of coordination of activities, information-sharing and technology transfer and diffusion. At the national level, policies could be formulated to encourage private sector participation in research and development. Specific policy initiatives and incentives might be needed to encourage confidence and investment in research by firms and venture capital organizations. Establishing complementary roles for the public and private sectors would be a key objective of long-term science and technology policy. Participants recommended that national Governments foster closer relationships between public sector research and the private sector, and develop mechanisms to ensure the diffusion of public sector technology to meet social and economic needs. To this end, it was important that national assessments and other policy initiatives aim to build effective relationships between stakeholder groups, including the private sector, the scientific community and the policy community.

22. At the international level, participants identified research cooperation and collaboration with and between developing countries as important mechanisms through which developing countries could access new technologies. Collaborative networks that link expatriate scientists from developing countries to their home institutions could bring benefits, such as access to new techniques, which would to some extent mitigate the problem of the "brain drain". Foreign ministries and other national representatives involved in international science and technology debate and negotiation could facilitate research partnerships. Diplomats had opportunities to create new international linkages and partnerships in science and technology, but were often constrained by lack of scientific training and understanding of current science and technology issues. This problem also impacted on the ability of

developing country representatives to negotiate international regulatory instruments for science and technology, including biosafety and intellectual property rights agreements. The Commission supported a recommendation that UNCTAD build on its experience of commercial diplomacy training by developing training mechanisms and packages for science diplomacy.

23. The Commission recognized that development of global regulatory instruments relating to biotechnology was a difficult and complex task, because of differing levels of technological capacity and development, and wide variation in socio-economic and cultural concerns between countries. Some countries were extremely concerned about the potential environmental risks related to biotechnology, and were in favour of strict regulation of new biotechnologies that had potentially adverse environmental impacts. On the other hand, countries where food security was a dominant national priority were likely to be more concerned about regulatory and legislative regimes that encourage and facilitate access to new technologies, and less concerned about high levels of environmental regulation. A balance between differing national interests should be reflected in international negotiations and the resultant regulatory and policy instruments. At the international level, the Commission, working in cooperation with the UNCTAD secretariat and other relevant agencies, could act as a focal point for the dissemination of policy and regulatory information. That information would include sources of balanced information on new and emerging biotechnologies, outlines of current international negotiations on policy issues related to biotechnology, and details of best practice in the development of regulatory systems.

24. The work of the Commission on the current substantive theme has highlighted the importance of improved information flows and management for the effective development and management of biotechnology. Better information flows could contribute to improving access to technology, sharing information on regulatory issues and models, and building greater public awareness. The importance of building adequate information and communication technologies (ICTs) infrastructure and providing resources for maintaining and utilizing this infrastructure was emphasized at all three panel meetings held during the period of the current work programme. Internet sites were particularly important channels for the dissemination of biotechnology-related information and knowledge. The progress of international initiatives aimed at facilitating affordable access to ICTs was of great concern to the Commission, and those initiatives could be followed up and monitored during the inter-sessional period 2001-2003. The Science and Technology for Development Network under construction in UNCTAD could serve as a useful focal point for the dissemination of balanced information.

25. It was generally agreed that there is a low level of public awareness about biotechnology in both industrialized and developing countries. The provision of balanced information might in itself be insufficient to ensure greater public awareness. Achieving the latter could depend to a large extent on the willingness and ability of the mass media to act as a channel for balanced science and technology information. Participants felt that building improved relationships and dialogue between scientists and the mass media would be extremely important in promoting balanced science reporting. Journalists should be able to easily identify and contact appropriate scientific experts in all disciplines and application areas related to biotechnology. Internet sites could be established to link scientists and journalists. Science communication training for both scientists and journalists could

also facilitate flows of more accurate science and technology information to the general public. On the other hand, rural populations in many developing countries did not have access to the mass media. Literacy levels and language barriers also affected rural people's access to science and technology information. Local awareness-raising campaigns that utilize locally appropriate channels of communication could be supported by national focal points for information dissemination.

26. The Commission could consider the establishment of a sub-group to be responsible for implementing and/or monitoring the recommendations of its fifth session in respect of national capacity-building in biotechnology. Some of those recommendations might be directed at, or be particularly relevant to, the many other international organizations involved in scientific or policy areas related to biotechnology. It was recognized by the Commission that effective international assistance to support national capacity-building in biotechnology in developing countries would draw on expertise and resources from many different international organizations, including United Nations and related agencies, the World Trade Organization, the World Bank and international centres of excellence. The Commission recommended that efforts be made by all international organizations to foster better cooperation and coordination of activities.

Action taken by the Commission

27. At its 8th meeting, on 1 June 2001, the Commission had before it the text of a draft resolution entitled "Science and technology for development", which was submitted by the Bureau of the Commission, on the basis of informal consultations.

28. At the same meeting, before the adoption of the draft resolution, statements were made by the representatives of Indonesia and Saudi Arabia.

29. Also at the same meeting, the Secretary made a statement regarding the programme budget implications of the draft resolution.

30. Also at the 8th meeting, the Commission adopted the draft resolution, as orally amended (see also chaps. III, IV, V and VI) (for the final text, see chap. I, sect. A).

Chapter III

Comprehensive note on implementation and progress made on decisions taken at the fourth session of the Commission

1. The Commission considered agenda item 3 at its 3rd and 8th meetings, on 29 May and on 1 June 2001. It had before it the following documents:

(a) Note by the Secretariat on the implementation of and progress made on decisions taken at the fourth session (E/CN.16/2001/3);

(b) Paper prepared by the UNCTAD secretariat on partnerships and networking in science and technology for development (E/CN.16/2001/Misc.4);

(c) Paper prepared by the UNCTAD secretariat on the changing dynamics of global computer software and services industry: implications for developing countries (E/CN.16/2001/Misc.5).

2. At its 3rd meeting, on 29 May 2001, the Chief of the Technology for Development Section and the Chief of the Technology and Enterprise Branch of UNCTAD made introductory statements.

3. At the same meeting, statements were made by the representatives of Bolivia and Romania.

4. Also at the same meeting, the observer for the Economic and Social Commission for Western Asia made a statement.

Chairperson's summary of the general discussion

5. The UNCTAD secretariat had undertaken a study and produced a report on the theme "Science and technology partnerships and networking for national capacity-building". This report (E/CN.16/2001/Misc.4) was before the Commission. UNCTAD had also held a series of expert meetings on partnering, networking and clustering. It was found that, for the private sector, the traditional means of accessing technology had been through licensing, reverse engineering, joint ventures, strategic alliances and linkages. Partnerships could take the form of equity or non-equity deals. Equity deals involve the purchase or exchange of shares between partners, while non-equity deals are contractually based. Partnerships in information and communication technologies (ICTs) and biotechnology had predominantly taken the form of contractual relationships. Inter-firm partnerships and networking had increased globally in the last decade, but the large majority of those forms of collaboration were between firms in member countries of the Organisation for Economic Cooperation and Development (OECD). The study indicated that Governments and other national organizations in developing and emerging economies could facilitate the creation of partnerships and networks through the implementation of policies to create a macroeconomic climate that was conducive to inter-firm cooperation, and a favourable legal and regulatory framework for inter-firm transactions. Policies that promoted upgrading of local technological, managerial and organizational capabilities were also necessary in order to realize potential benefits arising from inter-firm cooperation.

6. The Commission, in Economic and Social Council resolution 1999/61, had requested the UNCTAD secretariat to publish the findings and conclusions of

several reports on the theme of "The coalition of resources for the application of information and communication technologies", specifically in respect of transmission infrastructure, education and health. The synthesized findings of those reports, based on a total of 29 empirical case studies, were contained in a report (E/CN.16/2001/Misc.6) before the Commission at the current session. The report suggested that national strategies, policies and regulatory frameworks that aim to bridge the "digital divide" should be developed by a body at the highest political level. They would take into account the fact that the main forms of financing in information technology development were private capital and external finance. Perceived political risk was a major barrier to raising finance, but that risk could be offset by establishing appropriate legal institutions and the use of risk guarantees. The financial sustainability of information technology development would probably depend on charging user fees from the outset. Finally, it was stressed that access to technology is only a minor problem in relation to efforts needed to organize, finance and sustain information technology programmes.

7. A delegate pointed out that similar policy challenges and lessons were evident from the current and past work on ICTs and biotechnology undertaken by the Commission and the secretariat. There was clearly a need for national assessments, particularly in respect of infrastructure, national strategy and technology transfer, in order to facilitate policy formulation and implementation. Another delegate noted that the studies on technology partnerships and on the coalition of resources for ICTs had focused on private firms, and had not included innovating institutions in the public sector as significant agents for capacity-building in ICTs in developing countries.

8. A short document (E/CN.16/2001/Misc.7) summarizing key issues and providing balanced information on biotechnology had been produced in response to findings of the fourth session of the Commission on the theme of "Biotechnology for food production". Information on biotechnology had also been published on the UNCTAD-DITE web site and on the Science and Technology for Development Network. The secretariat was a member of the Inter-Agency Network for Safety in Biotechnology and had also collaborated with the South Centre in organizing a meeting on capacity-building for biosafety in December 2000. The Chairman of the Commission had participated in a meeting of the OECD Working Party on Biotechnology in October 2000.

Action taken by the Commission

9. At its 8th meeting, on 1 June 2001, the Commission adopted a draft resolution entitled "Science and technology for development" (see also chaps. II, IV, V and VI) (for the final text, see chap. I, sect. A).

Chapter IV

Presentation of country reports on technology and innovation policies

1. The Commission considered agenda item 4 at its 4th, 5th and 8th meetings, on 30 May and 1 June 2001.

2. At its 4th meeting, on 30 May 2001, Mr. Arthur Levin, Coordinator of the World Summit on the Information Society, made a presentation.

3. At the same meeting, the Chief, Technology and Enterprise Branch made a statement.

4. At the same meeting, the representatives of Brazil, Germany and the Russian Federation made statements.

5. At the same meeting, the observer for the Economic and Social Commission for Asia and the Pacific made a statement.

6. At the same meeting, country presentations were made by the representatives of Algeria, Brazil, China, Ghana, Indonesia, Romania and Sri Lanka.

7. Also at the same meeting, Mr. José Maria Figueres, Chairman of the United Nations high-level advisory group on information and communications technology, also made a presentation.

8. At the same meeting, statements were made by the representatives of Angola, Brazil, Colombia and Romania.

9. At the same meeting, the Secretary-General of the United Nations Conference on Trade and Development made a statement.

10. At its 5th meeting, on 30 May 2001, country presentations were made by the representatives of Belarus, Colombia, the Islamic Republic of Iran, Pakistan, Paraguay, Portugal and the Russian Federation.

Chairperson's summary of the general discussion

11. Mr. José Maria Figueres, Chairman of the United Nations high-level advisory group on information and communication technologies (ICT), presented an overview of the history, objectives and progress of the ICT Task Force. The Task Force, an important innovative public-private partnership being created under the United Nations umbrella, was the first instance of a body created by an intergovernmental decision in which Member States, the private sector and other stakeholders would participate as equal partners.

12. The Ministerial Declaration adopted by the high-level segment of the Economic and Social Council in 2000 had endorsed a proposal to establish an ICT task force. Under this initiative, the United Nations was to lend a truly global dimension to efforts to bridge the global "digital divide", foster digital opportunity and thus firmly put information and communication technologies at the service of development for all. The stated objective of the proposed Task Force was to provide overall leadership to the United Nations role in helping to formulate strategies for the development of information and communication technologies and putting those

technologies at the service of development and, on the basis of consultations with all stakeholders and Member States, to forge a strategic partnership between the United Nations system, private industry and financing trusts and foundations, donors, programme countries and other relevant stakeholders. The resolution adopted by the Economic and Social Council requested the Secretary-General to undertake consultations with all stakeholders and Member States regarding the composition, governance structure, mandate, terms of reference, secretarial support and project implementation arrangements of the Task Force.

13. The Secretary-General had initiated a worldwide consultation process to obtain the views of Governments, the private sector and other stakeholders on the establishment of the ICT Task Force. In this context, a group of high-level advisers to the Secretary-General on ICT had been designated to assist him in conducting the consultations. The speaker, a former President of Costa Rica, headed the Group. The major conclusion from the consultations, conducted from October to December 2000, and from written responses from Member States and United Nations organizations was that the initiative to establish an ICT Task Force was considered very timely and enjoyed broad support, including from the private sector. It had been repeatedly stressed that an endeavour of this magnitude and importance, predicated on genuine partnership of diverse stakeholders from both developed and developing countries, needed to be spearheaded by an "honest broker" and that the Secretary-General's role in this regard was indispensable. Also, it had been emphasized that while the United Nations umbrella was critical, the Task Force should have functional autonomy. In March 2001, the Economic and Social Council requested the Secretary-General to take the necessary steps to establish the ICT Task Force, in consultation with the regional groups and taking into account the views expressed by Member States.

14. The Task Force would comprise representatives of 18 Member States, eight representatives of the private sector, four representatives of non-profit organizations and six representatives of the organizations of the United Nations system. The President of the Economic and Social Council would be an ex officio member of the Task Force. The Secretary-General, after consultations with regional groups, would appoint the members of the Task Force in the near future. The first formal meeting of the Task Force was planned for September 2001, at which an outline plan of action and its implementation modalities would be adopted. It was also envisaged that a standing advisory board would be constituted. It was expected that a small core secretariat funded from voluntary contributions to provide secretarial support to the Task Force's activities would be established prior to the September meeting. It was intended to establish regional "nodes" to improve coordination of Task Force activities and facilitate the collection of information from individual countries.

15. The Vice-Chairperson of the Commission expressed the hope that the Commission would cooperate closely with the ICT Task Force, and noted that the substantive theme for the Commission's next inter-sessional period, "Technology development and capacity-building for competitiveness in a digital society", would complement the work of the Task Force. The Secretary-General of UNCTAD assured the speaker that UNCTAD would be pleased to collaborate with the Task Force. He noted that UNCTAD was a pioneer in the use of information technologies for promoting trade and actively built up ICT capacity through its technical assistance activities. Taking into account the experience of the Commission and its secretariat in ICT issues, Commission members stressed the need for the Bureau and

the secretariat to interact closely with the ICT Task Force in order to promote greater information exchange and coordination of their activities.

16. Several delegates expressed interest in the composition of the Task Force in terms of regional and national representation, and in obtaining more details about the regional "nodes". One delegate noted that several international ICT task forces had been set up, including those of the Group of Eight and the Group of Fifteen, and expressed the hope that there would be convergence between these task forces in terms of issues addressed. The Vice-Chairperson proposed that a web site to coordinate the activities of the various task forces be set up to avoid duplication of efforts. The UNCTAD secretariat indicated that the Science and Technology for Development Network could be useful for this purpose. The Chairman of the United Nations high-level advisory group on ICT said that the ICT Task Force would like to build on work already done by other organizations, including UNCTAD.

17. A presentation was given by Mr. Arthur Levin, of the International Telecommunication Union (ITU), on another global initiative relating to ICT — the planned World Summit on the Information Society. ITU would take the lead role in organizing the Summit and would draw up a set of procedures for including interested groups and agencies in the preparatory process. The heads of most United Nations agencies had agreed to serve on the organizing committee.

18. The proposal for the World Summit had emerged from the perceived need to define the relatively new concept of the "information society" and, given the central role of telecommunications in that "society", to develop harmonious policies, regulations, networks and services to manage global telecommunications. Themes for consideration at the Summit had been identified as:

- Building infrastructure to bridge the "digital divide";
- Universal and equitable access to telecommunications;
- Services and applications in the context of economic, social and cultural development;
- Consumer protection, privacy and security and other user needs;
- Frameworks for governance of the information society;
- ICT and education.

The expected outcomes of the Summit include a declaration of universal principles for the harmonious evolution of telecommunications policies and regulations across countries and at the global level and a plan of action to facilitate the implementation of those principles.

19. The Summit, provisionally scheduled for late 2003, is to be convened under the patronage of the Secretary-General and would be attended by Heads of State, United Nations agencies and non-governmental organizations and chief executive officers from private sector firms.

20. Reports on national technology and innovation policies were presented by delegates from Algeria, Angola, Belarus, Brazil, China, Colombia, Ghana, Indonesia, the Islamic Republic of Iran, Paraguay, Pakistan, Portugal, the Russian Federation and Sri Lanka.

21. The reports attached great importance to developing national capacity in biotechnology and ICT. New information technologies and networks were generally seen as an essential part of a knowledge-based economy offering new opportunities to developing countries. Most of the countries had recently established special programmes or task forces to coordinate their strategies for developing biotechnology and information and communication technologies and for extending their diffusion. There was a wide variety of approaches to building science and technology policies in these areas. To a large extent, differences in policy approaches reflected the varying levels of development and economic structures of individual countries, but the differences were also clearly related to the characteristics of the specific areas of technology. It was noted, for example, that biotechnology encompasses a wide range of techniques that vary widely in terms of technological complexity and maturity. The development and management of traditional techniques such as food processing and, on the other hand, modern biotechnologies, including genetic engineering, may require different policy measures. Nevertheless, there were common problems and weaknesses. These related to funding, human resource development, intellectual property rights and public-private partnerships. The main focus of the discussion focused on building new institutional arrangements for technological developments in order to actively foster networks and alliances between public sector research institutes, universities and the private sector.

22. In most of the countries, private sector activity in biotechnology and ICT was absent or only weakly developed and there was a very heavy reliance on public sector innovation. Given the weakness of public finances in most countries, this reliance presented a major barrier to the development of these key areas of technology. The problem also extended to training and education provision in the new technologies, which is recognized as critical to successful future development. In some countries, private sector training, particularly in ICT, has been developing rapidly. Access to technology was identified as a common area of weakness, particularly in respect of proprietary technology developed in the North. Building equitable and effective linkages between different types of stakeholders, including foreign firms, poses major challenges for developing countries. The issue of intellectual property rights introduces another set of challenges. A number of developing countries have been updating their intellectual property rights systems to conform to international standards. However, intellectual property protection regimes are still not fully developed in some countries, particularly regarding the rights for new plant varieties. Concerns remain about the time available for implementing reforms.

Action taken by the Commission

23. At the 8th meeting, on 1 June, the Commission adopted a draft resolution entitled "Science and technology for development" (see also chaps. II, III, V and VI) (for the final text, see chap. I, sect. A).

Chapter V
Budget of the Commission

1. The Commission considered agenda item 5 at its 5th and 8th meetings, on 30 May and 1 June 2001. It had before it a note by the Secretariat on the budget and intersessional activities of the Commission (E/CN.16/2001/4).

2. At the 5th meeting, on 30 May, an Economic Affairs Officer of the Technology for Development Section, Division on Investment, Technology and Enterprise Development, UNCTAD, made an introductory statement.

Chairperson's summary of the general discussion

3. A note on the biennial budget, which dealt with both regular and extrabudgetary resources, was presented by the secretariat. There are funds for one panel meeting before the end of 2001.

4. Also under this agenda item, the Commission adopted a draft resolution submitted by the Bureau, which recommended the establishment of a special trust fund for activities in the area of science and technology for development and also that resources currently available in the Trust Fund for Special Activities on Science and Technology be transferred to the newly created trust fund.

Action taken by the Commission

5. At its 8th meeting, on 1 June 2001, the Commission adopted draft resolution I entitled "Science and technology for development" (see also chap. II, III, IV and VI) (for the final text, see chap. I, sect. A).

6. At the same meeting, the Commission had before it a draft resolution entitled "Special Trust Fund for Activities in the Area of Science and Technology for Development", which had been submitted by the Bureau, on the basis of informal consultations.

7. Following a statement by the Secretary with regard to programme budget implications, the Commission adopted the draft resolution (see chap I. sect. A).

Chapter VI

Activities of the Commission regarding the coordination of science and technology for development and other intersessional activities

1. The Commission considered agenda item 6 at its 6th and 8th meetings, on 31 May and 1 June 2001. It had before it a note by the Secretariat on the activities of the Commission regarding the coordination of science and technology for development and relevant activities within the United Nations system, including the outcome of the World Science Conference (E/CN.16/2001/5).

2. At the 6th meeting, on 31 May, the Chief of the Technology Development Section of UNCTAD made an introductory statement and made a presentation on the Science for Development Network.

3. At the same meeting, statements were made by the representatives of Romania, the Russian Federation, Sri Lanka and Tunisia.

4. At the same meeting the observer for the United States of America made a statement.

Chairperson's summary of the general discussion

5. The UNCTAD secretariat outlined initiatives that had been undertaken in response to Economic and Social Council resolution 1999/61, which requested the secretariat of the Commission to continue with efforts, in collaboration with other United Nations bodies, to:

(a) Create an electronic network to link information about United Nations activities in science and technology and to build awareness of scientific developments;

(b) Interact closely with the United Nations system to promote greater information exchange and coordination in science and technology for development;

(c) Organize one Commission on Science and Technology for Development panel meeting in Geneva every two years;

(d) Report on the outcome of the World Science Conference;

(e) The secretariat had prepared a report on these items (E/CN.16/2001/5), which was before the Commission at its fifth session.

6. The World Science Conference aimed to help strengthen the commitment of the States members of UNESCO and other major stakeholders to science, education, research and development, and to define a strategy that would ensure that science responds better to society's needs and aspirations in the twenty-first century. The outcomes of the conference were reported in two principal documents:

(a) "The Declaration on science and the use of scientific knowledge", which underscores the need for political commitment from the international community to science development and to finding solutions to problems at the interface between science and society; and

(b) "The science agenda — framework for action", fostering partnerships in science and the use of science for sustainable human development and the environment.

7. In respect of improving coordination in the area of science and technology, efforts had been made to ensure broader participation by United Nations agencies in the work of the Commission's panels. The reports and outcomes of those panels had been more widely disseminated than previously, especially through greater use of the Internet. The secretariat had launched two Internet discussion lists to disseminate information on the work of the Commission.[16] The Commission and its secretariat had organized and promoted three panels on biotechnology developments with the participation of and substantive inputs from representatives of various United Nations agencies and institutes. There had been an increase in the level of cooperation between the Commission and its secretariat and other bodies of the United Nations system, especially the Commission on Sustainable Development and the Commission on the Status of Women and their secretariats.

8. The secretariat had established an electronic network, the Science and Technology for Development Network (STDev). It had been set up in collaboration with a number of United Nations agencies that provided information on their activities to be included in the network. This web site could serve as an important instrument for enhancing the coordinating role of the Commission in the area of science and technology and for disseminating information on best practices for the development, assessment, transfer, adaptation and diffusion of technology. The STDev site is expected to evolve into a directory of organizations that are active in the field of science and technology and ultimately into a gateway that will continue to expand and update its contents. Delegates were very positive in their comments about the efforts made by the secretariat to establish the STDev network, which was seen as relevant and comprehensive, and were interested in the wide variety of information sources that were accessible from that Network. Some delegates offered suggestions to improve its usefulness and accessibility. It was noted that Internet access in many developing countries was inadequate, and that low processing capacity caused unacceptable time lags in the accessing of web sites containing pictures and graphics. Therefore, that was a need to provide a "text only" version of the site. The need to publicize and promote the web site, especially to developing countries, was stressed.

Action taken by the Commission

9. At its 8th meeting, on 1 June 2001, the Commission adopted draft resolution I entitled "Science and technology for development" (see also chap. II, III, IV and V) (for the final text, see chap. I, sect. A).

[16] At *STD@topica.com* and *CSTD@topica.com*.

Chapter VII

Election of the chairperson and other officers for the sixth session of the Commission

1. The Commission considered agenda item 7 at its 6th meeting, on 31 May 2001.

2. At its 6th meeting, on 31 May, the Commission elected by acclamation, Mr. Hosein Salar Amoli (Islamic Republic of Iran) and Mr. Jose Luiz Villaveces Cardoso (Colombia) as Vice-Chairpersons of the fifth session of the Commission, to replace Mr. Mahmood Molanejad (Islamic Republic of Iran) and Mr. Gerardo Martinez-Lopez (Colombia), who had resigned their posts.

3. Also at the 6th meeting, on 31 May, the Commission elected, by acclamation Professor Vijaya Kumar (Sri Lanka), as Chairperson of its sixth session.

4. At the same meeting, the following persons were elected, by acclamation, as Vice-Chairpersons of the sixth session of the Commission:

Mr. Pedro Sebastião Teta (Angola)
Mr. Sergio von Horoch (Paraguay)
Mr. Stefan Moravek (Slovakia)
Mr. Jesus Martinez-Frias (Spain)

Chapter VIII

Provisional agenda and organization of work of the sixth session of the Commission

1. The Commission considered agenda item 8 at its 7th meeting, on 1 June 2001. It had before it an informal note by the UNCTAD secretariat containing the draft provisional agenda for the sixth session.

2. At the 7th meeting, on 1 June, the Chief of the Technology for Development Section of UNCTAD made an introductory statement.

3. Also at the 7th meeting, the Commission approved the provisional agenda for the sixth session and decided to entrust the UNCTAD secretariat with the task of completing the provisional agenda in the light of the resolutions and decisions adopted by the Commission at its fifth session (see chap. I, sect. B, draft decision I).

Chapter IX
Other matters

1. The Commission considered item 9 of the agenda at its 7th and 8th meetings, on 1 June 2001.

2. At the 7th meeting, on 1 June 2001, one of the Co-Chairpersons of the Gender Advisory Board made a statement.

3. At the same meeting, the Chief of the Technology and Enterprise Branch of UNCTAD made a statement.

4. At the same meeting, the representatives of Austria and Sri Lanka made statements.

5. Also at the same meeting, the Chief of the Technology for Development of UNCTAD made a statement.

6. At the same meeting, the Economic Affairs Officer, United Nations Conference on Trade and Development, briefed the Commission on the upcoming expert group meeting on technology transfer and international arrangements.

7. At the same meeting, the representative of Cuba made a statement (on behalf of the Group of 77 and China).

Chairperson's summary of the general discussion

8. Dr. Geoff Oldham, the Co-Chair of the Commission's Gender Advisory Board, briefly outlined the origins and activities of the Board since its inception in 1993 at the first session of the Commission. The speaker reported that three regional secretariats had been set up or are in the process of being set up. These are based in Egypt, Uganda and Uruguay. It was planned to set up a fourth regional secretariat in Romania. National focal points have been set up in a number of countries, many of whom are located in Government ministries. The Board had found that there was generally a low level of interest in gender issues related to science and technology at national level but that interest had grown rapidly over the last two years. The speaker requested an extension of the Board's mandate for the next four years. It was recognized that there had been close collaboration between the Board and the Commission secretariat. One of the Vice-Chairmen of the Commission, while supporting the work and activities of the Board, noted the need for increased collaboration and interaction between the Board and the Commission itself.

9. The secretariat reported briefly on the upcoming expert group meeting on the transfer of technology and international arrangements as mandated by UNCTAD's Trade and Development Board.

10. The representative of Cuba, on behalf of the Group of 77 and China made a statement on the need for the United Nations to strengthen its role in science and technology for development and thanked the UNCTAD secretariat for the initiative in establishing the Science and Technology for Development Network as a gateway for the dissemination of information and best practices in science and technology for development. Following this statement, the representative of Cuba, on behalf of the

Group of 77 and China introduced a draft resolution for consideration by the Commission.

Action taken by the Commission

11. At its 7th meeting, on 1 June 2001, the representative of Cuba (on behalf of the Group of 77 and China), introduced a draft resolution entitled "Strengthening the work of the Commission on Science and Technology for Development".

12. At its 8th meeting, on 1 June 2001, the Commission had before it a revised draft resolution, which was submitted by the Group of 77 and China, and a draft decision on the extension of the mandate of the Gender Advisory Board.

13. At the same meeting, the Vice-Chairperson (Colombia) informed the Commission of the outcome of informal consultations held on the draft resolution.

14. At the same meeting, the Secretary indicated that a statement containing the programme budget implications associated with the draft resolution would be prepared and presented to the substantive session of the Economic and Social Council in July 2001.

15. At the same meeting, before the adoption of the draft resolution, statements were made by the representatives of Germany and the Islamic Republic of Iran, as well as the observers for Egypt, Japan and the United States of America.

16. At the same meeting, the Commission adopted the draft resolution and the draft decision (see chap. I, sect. A, draft resolution III and draft decision II).

Chapter X

Adoption of the report of the Commission on its fifth session

1. At its 8th meeting, on 1 June 2001, the Commission had before it the draft report of its fifth session, as contained in document E/CN.16/2001/L.1.

2. At the same meeting, the Commission adopted its draft report on its fifth session and authorized the secretariat and the members of the Bureau to finalize it with a view to its submission to the Economic and Social Council.

Chapter XI
Organization of the session

A. Opening and duration of the session

1. The Commission on Science and Technology for Development held its fifth session from 28 May to 1 June 2001, in accordance with Economic and Social Council decision 2001/209. The Commission held 8 meetings (1st to 8th meetings) and a number of informal meetings.

2. At the 1st meeting, on 28 May, the Chairman, Mr. Stefan Moravek (Slovakia), opened the session and made an opening statement.

3. At the same meeting, the Deputy Secretary-General of the United Nations Conference on Trade and Development, the Director of the Division on Investment, Technology and Enterprise Development, UNCTAD, and the Executive Director of the Third World Academy of Sciences, addressed the Commission.

4. In his introductory statement, the Deputy Secretary-General of UNCTAD said that biotechnology was an issue at the top of the global agenda. It had become a controversial subject in international debate, one that was fraught with misconceptions and uncertainty. Where there was public hostility towards biotechnology, this was due, to a large extent, to a lack of balanced information in the public arena.

5. It was important that developing countries establish informed positions on the benefits and risks presented by biotechnology. If fear, based on a lack of balanced information, began to dominate debate, developing countries might fail to take up opportunities to apply the new technologies to improve agriculture, health and national competitiveness.

6. UNCTAD and the Commission on Science and Technology for Development could integrate their work programmes to address capacity-building for biotechnology. However, there were limitations to what could be achieved. UNCTAD was not a scientific organization. One of its core competencies was helping developing countries to engage in policy debate and formulation, at both national and international levels, and also in designing initiatives for policy implementation.

7. In order to make a significant contribution to the development of biotechnology policy in developing countries, initiatives recommended by the Commission must be realistic. The emphasis should be on implementation and practical action. This applied not only in the case of biotechnology, but also in other key areas of technology such as ICT. Only then could the recommendations contribute to the development agenda.

8. Professor Mohamed Hassan, Executive Director of the Third World Academy of Sciences, gave an opening address in which he stressed the need for the countries of the South to build, sustain and effectively utilize indigenous capacity in modern science and technology. Biological and material sciences, biotechnology and new ICT were noted as being particularly important.

9. The most critical problem facing the developing world was the continually widening gap between the North and the South in the production and utilization of

frontier science and technology. The primary challenge was to find ways of helping the majority of developing countries narrow the knowledge gap by building indigenous technological capacity. This capacity must be appropriately channelled to address the most pressing problems facing the majority of those countries: poverty; tropical diseases; food; energy and water shortages; and the associated negative impacts on biological resources, climate change and water quality.

10. Biotechnology held promise for increasing food production, enhancing environmental protection and improving the treatment of tropical diseases. However, if this promise was to be fulfilled, local scientists must be trained to the highest standards and put their skills to work in addressing the particular problems of the South. Similarly, ICT presented tools for developing countries that were falling behind in the global "knowledge revolution" to catch up quickly, particularly in collaboration with colleagues around the world. On the other hand, countries of the South that had extremely inadequate ICT infrastructure were effectively denied access to the wealth of scientific and technological information available on the Internet.

11. Southern nations, with the assistance of international partners, should develop and implement strategies to address these opportunities and challenges for technological capacity-building. Key elements of such strategies would include the development of local capacity and leadership in science and technology, and the establishment of centres of excellence in science and technology; greater participation by scientists in science and technology advocacy and science policy debate at national and international levels; seeking the active participation of both the private sector and expatriate scientists in the development of science and technology; and, finally, cooperation and exchange of information and experiences between Southern countries, and others, on problems of particular concern in the South.

12. The Director of the Division on Investment, Technology and Enterprise Development said that increasing emphasis was being placed on competitiveness as a critical factor for survival and growth in the global economy. There was a close relationship between national prosperity, productivity and the take-up of new technologies. On the other hand, rapid advances in technological development could also contribute to growing global inequality.

13. Knowledge and access to the latest advances in technology were key elements in international competitiveness. Over the past decade, foreign direct investment had emerged as the main vehicle through which transfer and acquisition of technologies had occurred. Many of those East Asian countries that were amongst the world's fastest-growing exporters of manufactured products had put strategic emphasis on building up indigenous technological capacity, while at the same time encouraging inward technology flows through foreign direct investment. For those reasons, technology transfer had been, and would continue to be, a major theme for UNCTAD. The main goals of UNCTAD's technology programme were to foster the transfer and diffusion of technology and to build capacity in developing countries.

14. The Commission on Science and Technology for Development was a partnership between the members of the secretariat and the Commission itself. Given that resources were limited, there was a need to look for synergies between UNCTAD and the Commission: specifically, there was a need to integrate the Commission's programme of work with that of the Bangkok and Havana mandates

in the areas of technology and investment, and to link it closely to work on foreign direct investment.

15. Also at the same meeting, Mr. Tariq-ur Rahman (Pakistan) introduced the outcome of the panel on capacity-building in biotechnology; Mr. Bernd Michael Rode (Austria) introduced the outcome of the panel on legal and regulatory issues in biotechnology; and Mr. Pedro Sebastião Teta (Angola) introduced the outcome of the panel on public awareness and participation in science and policy-making in biotechnology.

B. Attendance

16. The session was attended by representatives of 28 States members of the Commission. Observers for other States Members of the United Nations and from non-member States and representatives of the specialized agencies and intergovernmental and non-governmental organizations also attended. A list of participants is contained in annex I.

C. Election of officers

17. At the 10th meeting of its fourth session, on 21 May 1999, the Commission had elected the following members of the Bureau by acclamation:

Chairperson:

Mr. Stefan Moravek (Slovakia)

Vice-Chairpersons:

Mr. Bernd Michael Rode (Austria)
Mr. Pedro Sebastião Teta (Angola)
Mr. Hossein Salar Amoli (Islamic Republic of Iran)
Mr. José Luis Villaveces Cardoso (Colombia)

18. At its 6th meeting, on 31 May 2001, the Commission elected by acclamation Mr. Hosein Salar Amoli (Islamic Republic of Iran) and Mr. José Luis Villaveces Cardoso (Colombia) as Vice-Chairpersons for the fifth session of the Commission to replace Mr. Mahmood Molanejad (Islamic Republic of Iran) and Mr. Gerardo Martinez-Lopez (Colombia), who had resigned their posts.

D. Agenda and organization of work

19. At its 1st meeting, on 28 May 2001, the Commission adopted its provisional agenda, contained in document E/CN.16/2001/1, and approved the organization of its work, contained in document E/CN.16/2001/1/Add.1. The agenda was as follows:

1. Adoption of the agenda and other organizational matters.

2. Substantive theme: "National capacity-building in biotechnology", with particular attention to agriculture and the agro-industry, health and the environment. The theme will include: human resource development through basic science education, research and development, as well as their interdisciplinary aspects; the transfer, commercialization and diffusion of technology; increasing public awareness and participation in

science policy-making; and bioethics, biosafety and biodiversity and the legal and regulatory matters affecting these issues to ensure equitable treatment.

3. Comprehensive note on the implementation of and progress made on decisions taken at the fourth session of the Commission.

4. Presentation of country reports on technology and innovation policies.

5. Budget of the Commission.

6. Activities of the Commission regarding the coordination of science and technology for development and other inter-sessional activities.

7. Election of the Chairperson and other officers for the sixth session of the Commission.

8. Provisional agenda and organization of work of the sixth session of the Commission.

9. Other matters.

10. Adoption of the report of the Commission on its fifth session.

E. Documentation

20. The documents that were before the Commission at its fifth session are listed in annex II.

Annex I

Attendance

Members

Algeria:	Abdelhakim Bennekaa, Nor-Eddine Benfreha
Angola:	Pedro Sebastião Teta, João Filipe Martins, Rolando Felicidades de Jesus Neto, Justino Manuel Vanda, Amadeu Leitão Nunes
Austria:	Bernd Michael Rode, Peter Storer
Belarus:	Syargei Katsko
Belgium:	Luk Van Langenhove, Joseph Tabury, Veronique Dethier
Bolivia:	Antonio Saavedra Munoz
Brazil:	Marilia Sardenberg Zelner Goncalves, Felipe C. Santarosa
Cameroon:	Henri Hogbe Nlend
China:	Jin Ju, Luo Delong
Colombia:	Jose Luis Villaveces Cardoso, Miguel Camilo Ruiz Blanco
Ethiopia:	
Germany:	Andreas Stamm
Ghana:	Joseph R. Cobbinah
Greece:	Lena Tsipouri, Angelos Ypsilantis
Grenada:	Peter Thomas
Indonesia:	Agus Hartanto, Iwan S. Amri
Iran (Islamic Republic of):	Hossein Salar Amoli, Ali A. Mojtahed Shabestair
Jamaica:	Ransford A. Smith, Symone Betton
Pakistan:	Tariq-ur-Rahman
Paraguay:	Sergio G. von Horoch
Portugal:	Armando Trigo Abreau, Sonia Melo E. Castro
Romania:	Rolanda Predescu
Russian Federation:	Alexander M. Novikov, Oleg V. Rudenskiy
Sierra Leone:	Thomas Yormah
Slovakia:	Stefan Moravek
Spain:	Jésus Martinez Frias, Antonio Luis Bullon Camarasa, Joaquim Bellmunt
Sri Lanka:	Vijaya Kumar, Gothami Indikadahena

Tunisia: Hatem Ben Salem, Ali Abaab, Samia Ilhem Ammar

Uganda: Nakoko Masuba Patrick

States Members of the United Nations represented by observers

Argentina, Barbados, Croatia, Cuba, Egypt, France, India, Italy, Kazakhstan, Madagascar, Mexico, Nepal, Saudi Arabia, South Africa, United Republic of Tanzania, United States of America and Zimbabwe

Specialized agencies and related organizations

World Health Organization, United Nations Industrial Development Organization, World Trade Organization and International Atomic Energy Agency

United Nations bodies

Economic and Social Commission for Asia and the Pacific, Economic Commission for Africa, Economic Commission for Western Asia, United Nations Environment Programme and Office of the United Nations High Commissioner for Human Rights

Intergovernmental organizations represented by observers

Arab Labour Organization, European Community, Organization of African Unity, Organization of the Islamic Conference, South Centre

Non-governmental organizations

General consultative status

Engineers of the World
International Confederation of Free Trade Unions

Panellists

Prof. Mohamed Hassan
Mr. José Maria Figueres
Mr. Richard Braun
Mr. Arthur Levin

Annex II

List of documents before the Commission at its fourth session

Document number	*Agenda item*	*Title or description*
E/CN.16/2001/1	1	Provisional agenda
E/CN.16/2001/1/Add.1	1	Organization of work of the session
E/CN.16/2001/2	2	Report by the Secretary-General: synthesis report on the Commission on Science and Technology for Development panels on national capacity-building in biotechnology
E/CN.16/2001/3	3	Note by the secretariat on the implementation of and progress made on decisions taken at the fourth session
E/CN.16/2001/4	5	Note by the secretariat on the budget and intersessional activities of the Commission
E/CN.16/2001/5	6	Note by the secretariat on the activities of the Commission regarding the coordination of science and technology for development and other intersessional activities
E/CN.16/2001/L.1	13	Draft report of the Commission on its fifth session
E/CN.16/2001/Misc.1	2	Summary report prepared by the UNCTAD secretariat on the panel on capacity-building in biotechnology, Tehran, 11-13 April 1999
E/CN.16/2001/Misc.2	2	Summary report by the UNCTAD secretariat on the panel on legal and regulatory issues in biotechnology, Geneva, 3-5 July 2000
E/CN.16/2001/Misc.3	2	Summary report prepared by the UNCTAD secretariat on the panel on public awareness and participation in science policy-making in biotechnology, Tunis, 14-16 November 2000
E/CN.16/2001/Misc.4	3	Paper prepared by the UNCTAD secretariat on partnerships and networking in science and technology for development
E/CN.16/2001/Misc.5	3	Paper prepared by the UNCTAD secretariat on the changing dynamics of the global computer software and services industry: implications for developing countries
E/CN.16/2001/Misc.6	3	Paper prepared by the UNCTAD secretariat on coalition of resources for information and communication technologies
E/CN.16/2001/Misc.7	3	Note by the UNCTAD secretariat on key issues in biotechnology
E/CN.16/2001/Misc.8		Provisional list of participants

Annex III

Summary of the videoconference between the Bureau of the Economic and Social Council and the Bureau of the Commission on Science and Technology

During the fifth session of the United Nations Commission on Science and Technology for Development, a videoconference was held to enable direct interaction between the Bureau of the Commission and the bureau of the Economic and Social Council. During this videoconference, the Bureau of the Economic and Social Council raised a series of questions concerning the Commission's contribution to the work of the Council, its collaboration with the other functional commissions and its contribution to the implementation of major United Nations conferences.

Commission members noted that past and current themes of the Commission's biennial programmes of work had included gender and science and technology, information and communication technologies, partnerships and networking for capacity-building, and capacity-building in biotechnology. These themes cut across the activities of other commissions and international working groups. As a result, there had been regular liaison and cooperation with the Commission on the Status of Women, the Commission on Sustainable Development and the Commission on Investment, Technology and Related Financial Issues of UNCTAD. In addition, the Commission on Science and Technology for Development, through the UNCTAD secretariat, participated in the agency's Network for Safety in Biotechnology and in the Working Party on Biotechnology of the Organisation for Economic Cooperation and Development (OECD). In future, the Commission would also participate, as appropriate, in both the work of the new ICT Task Force as well as in the preparations for the World Summit on Information Societies.

On the topic of the role of the United Nations in promoting access to and transfer of technology, particularly ICT, the Bureau of the Commission reminded the Economic and Social Council that it had already made a considerable contribution on the subject when it produced the book, *Knowledge Societies: Information Technology for Sustainable Development*.[a] This publication contained comprehensive guidelines for national ICT strategies. Further, the Commission has chosen "Technology development and capacity-building for competitiveness in a digital society" as its new substantive theme for the period 2001-2003. This would allow the Commission to contribute to the Havana Programme of Action and the Bangkok Plan of Action of UNCTAD in the area of access to technology.

The Bureau of the Economic and Social Council was very interested in the suggestions of the Commission members for the functioning of the new ICT Task Force, including proposals to link the efforts of the various international task forces on ICT, including those set up by the Group of Eight and the Group of Fifteen. In particular, the Economic and Social Council would like more information on the Commission's ideas for regional hubs within the ICT Task Force. The Commission on Science and Technology for Development, during its fifthsession, had already

[a] United Nations publication, Sales No. E.GV.98.O.11.

made the suggestion that the Task Force could link up with the Science and Technology for Development Network, which had been launched during the session.

The Economic and Social Council noted that the present work of the Commission on Science and Technology for Development on biotechnology was very relevant to achieving sustainable development in Africa. Biotechnology has an enormous potential to support national efforts towards food security, improved health, environmental sustainability and increased competitiveness. The recommendations on the development and management of biotechnology to maximize benefits and minimize risks, if adopted by the Economic and Social Council, could contribute to sustainable development.

The Bureau of the Economic and Social Council was particularly interested in the contributions of the Commission to its high-level segment. The Bureau thanked the Commission for its submission, which had been the most complete of all the functional commissions. The Bureau stated that, in fact, the Commission was the best functional commission, in that it was the best source of information on specialized topics. This reflected its professionalism and scientific expertise. The Bureau invited the members of the Commission to suggest ways of strengthening their work. The members said that they were flexible and willing to assist the Economic and Social Council more directly in its work and suggested that there should be more direct interaction between the Commission and the Bureau of the Council.

The Bureau was very anxious to have input from the Commission on Science and Technology for Development to the ten-year review of the United Nations Conference on Environment and Development: the World Summit on Sustainable Development, to be held in Johannesburg, the World Summit on the Information Society, to take place in 2003, and to the implementation of the United Nations Millennium Declaration. Both the Bureau and the Commission on Science and Technology for Development recognized that additional resources would be needed to make these contributions.

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